International Journal of Education Research and Development
https://e-journal.yayasancec.or.id/index.php/corolla
eISSN: 2775-3689; pISSN: 2775-4766

Efforts to Improve the Ability to Recognize Letters in Children Aged 4-5 Years with Movable Alphabet Montessori Media

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Abstract. This study aims to improve the letter recognition ability of children aged 4–5 years using the Movable Alphabet Montessori media at TK IT Al-Hafiz Cendekia. Employing a Classroom Action Research (CAR) design, the study followed the Kemmis and McTaggart model consisting of planning, action, observation, and reflection phases. The research subjects were 20 children (10 boys and 10 girls) selected through purposive sampling based on their age group and observed challenges in letter recognition. Data collection was conducted through structured observation and documentation of classroom activities. The indicators used in observations included fine motor coordination (hand-eye coordination, finger dexterity, and muscle control), letter identification accuracy, and student engagement during activities. Data analysis was carried out using both quantitative methods—calculating the percentage of students meeting learning criteria—and qualitative methods—analyzing field notes and documentation for insights into learning behavior. In Cycle I, only 20% of children reached the target criteria. However, Cycle II showed improvement with 75% achieving the desired outcomes. These findings demonstrate that the Movable Alphabet media effectively enhances early literacy development through hands-on, child-centered learning experiences.

Keywords: *Letter Recognition Ability, Children Aged 4-5 Years, Moving Alphabet Media*

Introduction

Early childhood is a critical period marked by rapid cognitive, motor, emotional, and social development. According to the Indonesian National Education System Law No. 20 of 2003, Early Childhood Education (PAUD) aims to provide educational stimulation for children from birth to six years of age, as well as prepare them for the next level of education (Harmi et al., 2022; Arifudin et al., 2021). This stage, often referred to as the "golden age", is very important for laying the foundation for lifelong learning and development (Rijkiyani et al., 2022).

The main challenge in early childhood education is developing basic literacy skills, especially letter recognition. Children aged 3-4 years begin to develop important cognitive and motor skills, which form the basis for future learning. However, many children aged 4-5 years have difficulty distinguishing between similar letters, such as "b" and "d" or "p" and "q." This difficulty often arises due to limited direct interaction with letters, a lack of interesting learning media, and rliance on traditional teacher-centered learning (Purwati, 2021).

One effective approach in early childhood education is the Montessori method developed by Dr. Maria Montessori. This method emphasizes a structured yet child-centered learning environment, encouraging hands-on exploration and independent learning. The Montessori philosophy fosters independence, self-confidence, and cognitive development, making it an appropriate approach to improving early literacy skills. An important tool in this method is the Moving Alphabet, which consists of small, manipulable letters that children can arrange to form words, helping them understand letter-sound relationships (Suryani & Muharrahman, 2022).

Observation results at TK IT Al-Hafiz Cendekia showed that children faced challenges in recognizing letters due to a lack of learning materials, a lack of stimulation, and low motivation. Out of 20 children, only seven could recognize letter shapes effectively, while 13 children had difficulty distinguishing and remembering letters. The main teaching method relies on memorization and textbook-based exercises, limiting children's opportunities to learn

Article info:
https://doi.org/ 10.52760/ijerd.v5i1.101
Received 21 December 2024; Received in revised form 10 February 2025; Accepted 24 April 2025

interactively. Research shows that practical activities, such as using the Movable Alphabet, significantly improve children's ability to recognize and remember letters more effectively than conventional teaching methods (Suryani & Muharrahman, 2022).

The gap in existing research lies in the lack of studies examining the direct application of the Montessori method, particularly the use of the Movable Alphabet, in improving letter recognition in Indonesian early childhood settings. While some studies have explored general Montessori techniques, few have focused on how the Movable Alphabet specifically impacts letter recognition among children aged 4-5 years in the context of Indonesia's educational environment. Moreover, this study addresses the gap by focusing on TK IT Al-Hafiz Cendekia in Pali Regency, which has not been examined in prior research.

Movable Alphabet is a medium to stimulate early reading skills by allowing children to physically manipulate letters, strengthening their understanding of letter shapes and phonetics. This interactive approach is in line with the principles of Montessori education, which emphasizes experiential learning through sensory engagement. Research has shown that children who use the Movable Alphabet show increased letter recognition, phonemic awareness, and reading readiness (Suryani & Muharrahman, 2022).

The novelty of this study lies in its focus on a specific Montessori-based tool—Movable Alphabet and its application in a local Indonesian context to improve letter recognition skills. By introducing this method at TK IT Al-Hafiz Cendekia, this study not only contributes to a deeper understanding of the effectiveness of the Montessori approach in Indonesia but also offers practical insights for early childhood educators and parents on incorporating hands-on, interactive tools into literacy education.

Based on the background, this study aims to explore the improvement of letter recognition for children aged 4-5 years at TK IT Al-Hafiz Cendekia in Pali Regency. This study will provide valuable insights for educators and parents about the use of Montessori-based tools to support the development of letter recognition in children. The benefits as a medium for teaching letter recognition create a more interesting and effective learning experience for children at TK IT Al-Hafiz Cendekia.

Materials and Methods

This study utilized Classroom Action Research (CAR) based on the Kemmis and McTaggart model, focusing on planning, acting, observing, and reflecting. Conducted over two cycles with six sessions each, the research aimed to enhance letter recognition among 20 students at TK IT Al-Hafiz Cendekia using moving alphabet media. The study took place in Handayani Mulya, Talang Ubi, from February 5 to 24, 2025, with data collected from school administrators, teachers, and students through observations and documentation, capturing classroom dynamics, teacher-student interactions, and learning outcomes. Indicators for measuring children’s letter recognition included fine motor skills, letter recognition, and student engagement. Data analysis followed an iterative process, employing quantitative methods to calculate the percentage of children meeting specific criteria and qualitative methods to analyze field notes for insights into classroom dynamics. The findings demonstrated significant progress in children’s letter recognition abilities, indicating that moving alphabet media created a more engaging and interactive learning environment. This research emphasizes the importance of reflective practice in teaching, allowing for continuous improvement in instructional strategies, and ultimately contributes valuable insights into optimizing teaching methods and enhancing educational experiences for young learners, supporting the notion that hands-on, interactive tools can effectively foster literacy development in early childhood education.

Results and Discussion

Results

Description of Initial Data on Children's Abilities

1. Pre-action

   In this Classroom Action Research (CAR), the researcher first conducted observations on the children to assess the children's initial condition to improve the children's ability to recognize letters through moving letter media. This study directly observed the children during teaching and learning activities. The data collected describes the children's abilities in four indicators of the development of letter recognition abilities:

Table 1.

Results of Observation of Children's Fine Motor Skills Before Action

No	Child's Initial	Total Score	Completion Rate	Assessment Criteria
1	ME	7	43.70%	Beginning to Develop
2	NA	5	31.20%	Beginning to Develop
3	AR	7	43.70%	Beginning to Develop
4	SY	12	75%	Developing as Expected
5	RE	9	56.20%	Developing as Expected
6	SH	4	25%	Not Yet Developed
7	CA	4	25%	Not Yet Developed
8	ER	10	62.50%	Developing as Expected
9	FA	10	62.50%	Developing as Expected
10	FA	7	43.70%	Beginning to Develop
11	HI	13	81.20%	Developing Very Well
12	ZH	5	31.20%	Beginning to Develop
13	KH	9	56.20%	Developing as Expected
14	KH	9	56.20%	Developing as Expected
15	MI	4	25%	Not Yet Developed
16	AR	4	25%	Not Yet Developed
17	IN	8	50%	Beginning to Develop
18	SY	7	43.70%	Beginning to Develop
19	RA	6	37.50%	Beginning to Develop
20	SA	6	37.50%	Beginning to Develop

Based on Table 1 above, four children (20%), namely Chy, Snm, Arsh, and Mfth, with the criteria of not yet developing. Nine children (45%), namely Mc, Nsr, Frhn, Arrs, Zhf, Inm, Syq, Rfs, and Spr, meet the criteria of starting to develop. Seven children (30%) meet the criteria of developing according to expectations, namely Sy, Rf, Er, Fh, Kh, and Khl. Then one child (20%), namely Hly, is included in the category of Developing Very Well. The following table will present a recapitulation of data on children's letter recognition abilities before the action.

Table 2 .

Recapitulation of Letter Recognition Ability Data

No	Assessment Criteria	Number of Children	Completion Rate
1	Not Yet Developed	4	20%
2	Beginning to Develop	9	45%
3	Developing as Expected	6	30%

No	Assessment Criteria	Number of Children	Completion Rate
4	Developing Very Well	1	5%

Based on Table 2 above, the recapitulation of the percentage data on pre-action letter recognition ability can be clarified through the graph in Figure 1 below.

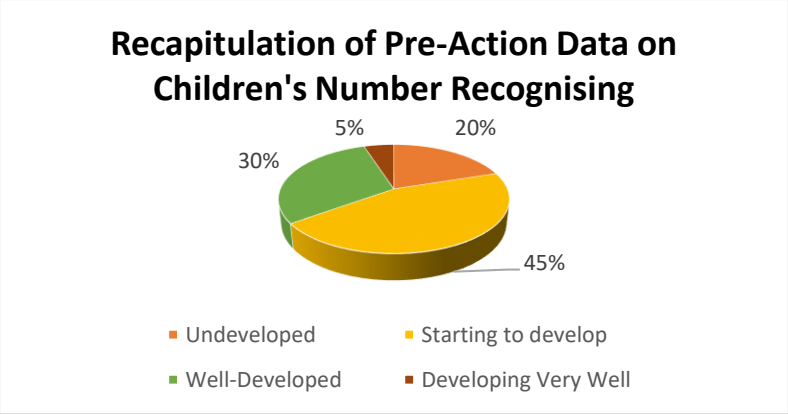

Figure 1.
Graph of Observation Results of Children's Ability to Recognize Letters Before Action

From the data in Figure 4.1, the results of observations on the ability to recognize letters in children aged 4-5 years at TK IT Al-Hafiz Cendekia show that the ability to recognize letters in children is still low. The criteria consist of four children (20%) included in the Not Yet Developing category because the children have not been able to recognize letter sounds with the phonics method using movable alphabet media. Then nine children (45%) are included in the Starting to Develop (MB) category because the children can mention the initial sound of a word based on the letters using the movable alphabet media shown, but still need direction and guidance from the teacher. Six children (30%) are included in the Developing According to Expectations category because the children are already able. One child (5%) is included in the Very Well Developing category because the child's ability is mainly increasing the ability to recognize letters of the alphabet through movable alphabet media in children aged 4-5 years at TK IT Al-hafiz Cendekia.

Description of Cycle I Results

Planning

The first cycle of classroom action research was carried out in six sessions from February 5 to February 12, 2025, with the theme "The Universe". Before being implemented, the researcher prepared a Daily Learning Implementation Plan (RPPH), which had been approved by the head of TK IT Al-Hafiz Cendekia. The plan aims to improve children's ability to recognize letters by using moving script learning media. Coordination was carried out with the class teacher, who acted as the main instructor, while the researcher acted as an observer. A checklist was prepared to monitor children's progress during the activity.

The learning process is structured into four phases:

1. **Opening**
   The children started the activity by reading the Quran and praying Dhuha, then singing, doing ice breaking, and memorizing short letters and prayers. Before entering the class, they participated in a guessing game to stimulate their curiosity.
2. **Core activities**
   The teacher introduced the day's lesson using visual aids, videos, and demonstrations. Singing and clapping games related to the theme helped reinforce the material. Hands-on

activities such as writing, coloring, cutting, and pasting were also included. Four children were selected to practice recognizing letters using the moving alphabet, guided by the teacher and researcher, who provided support and encouragement.

3. **Time off**
   The children ate food prepared by BMKG, followed by prayers and hygiene routines. They then played outside before washing their hands and returning to class to sing and pray together.
4. **Closing**
   The teacher reviews the day's activities, asks the children about their experiences, and shares important reminders. Before leaving the classroom, the children sit quietly, say a closing prayer, and say goodbye to their teacher.

Implementation

1. **First meeting (Wednesday, February 5, 2025)**
   The first cycle of this classroom action research was carried out for six meetings using moving letters media to improve fine motor skills in Class A of TK IT Al-Hafiz Cendekia. The first meeting was held on February 5, 2025, with the theme of the Universe, with the subtheme of celestial bodies and the sun. The session began with recitation of the Qur'an, Dhuha prayer, and singing together as an icebreaker. The teacher then introduced the learning plan based on the Daily Learning Implementation Plan (RPPH) by inviting children to play with moving letters. The children sat orderly and were introduced to 26 letters of the alphabet, where consonants were red and vowels were blue. The children took turns in groups of four to identify, arrange, and read the letters, while the teacher and researcher provided guidance and encouragement. Continuous assessment was carried out throughout the session, and learning activities were documented. Children who were waiting for their turn were involved in drawing, writing, cutting, and pasting related to the theme to maintain order. The results of this first session showed progress in letter recognition, indicating the effectiveness of the moving alphabet as a learning tool.
2. **Second meeting (Thursday, February 6, 2025)**
   In the second meeting (Thursday, February 6, 2025), the chosen theme was “The Universe”, with the subtheme “Heavenly Objects” and the subtheme “The Moon”. Learning began with routine activities, namely reading the Qur'an, performing the Dhuha prayer, then sitting in their respective places to pray, saying greetings, and ice-breaking by singing. After completing the routine activities, the teacher explained the learning activities designed in the learning plan, namely, playing with moving letters. Children were guided to sit attentively and listen to the rules of the game, followed by a demonstration of how to play. The game was played in turns, with children taking part based on their names being called. As in the previous session, children were involved in the moving letter activity, receiving assistance from the teacher and researchers when needed. Appreciation was given to those who tried. Throughout the session, observations and assessments were made, and the process was documented. Meanwhile, children who had not been called were given alternative tasks, such as drawing, writing, cutting, and sticking, related to the day's theme, ensuring that they remained involved and sat properly. The results of the moving alphabet activity in improving letter recognition skills during the second session of Cycle I were recorded for further analysis.
3. **Third Meeting (Friday, February 7, 2025)**
   In the third meeting, the theme raised was “The Universe” with the subtheme “Heavenly Objects” and the subtheme “Stars”. The session began with routine activities such as reading the Qur'an, performing the Dhuha prayer, reading prayers, greeting, and ice breaking by singing together. After that, the teacher explained the moving letter game designed in the RPPH. The children sat attentively, listening to the rules of the game

before playing in turns. The teacher and researchers provided assistance and appreciation to children who had difficulties. Meanwhile, children who had not played were given safe tasks such as drawing, writing, cutting, and sticking according to the theme to maintain a conducive atmosphere. During the game, assessments and documentation of activities were carried out. The results of the third meeting showed an increase in children's ability to recognize letters.

4. **Fourth Meeting (Monday, February 12, 2025)**
   The theme of this meeting was "Myself", with the subtheme "My Needs" and the subtheme "My Matras". After completing the routine activities, the teacher explained the rules of the moving alphabet game. Children played in turns according to the order of calling, while those who had not played worked on the tasks given. The teacher and researchers provided assistance and rewards to the children for their efforts. Evaluation and documentation were carried out throughout the session to assess children's progress in letter recognition.
5. **Fifth Meeting (Wednesday, February 14, 2025)**
   The session focused on the theme “The Universe,” with the subthemes “Heavenly and Earthly Objects” and “Meteors.” After the routine activities, the teacher explained the rules of the moving alphabet game before the children took turns playing. Children who had difficulty received help and encouragement from the teacher and the researcher. Meanwhile, those who were waiting for their turn were given safe tasks to maintain focus. The activities were assessed and documented to track the development of children’s letter recognition.
6. **Sixth Meeting (Thursday, February 15, 2025)**
   The last meeting in Cycle I carried the theme "The Universe," with the subtheme "Heavenly Objects" and the subtheme "Earth." After the routine activities, the teacher introduced the moving alphabet game, and the children played in turns. The teacher and researcher provided guidance and appreciation for their participation. Children who had not played were given safe tasks to help them stay engaged. Evaluation and documentation were conducted to measure the improvement in letter recognition through this activity.

Observation

Observations were conducted simultaneously with learning activities. So that researchers can see directly when children play with moving letters and record the development experienced by children, and document the results. The research conducted observed indicators of children's fine motor aspects, namely eye and hand coordination, movements involving fingers and wrists, and control of hand movements using fine muscles. The results of observations of children's ability to recognize letters in Cycle I can be explained in Table 3 below:

Table 3.
Recapitulation of Letter Recognition Ability Data Cycle I

No	Assessment Criteria	Number of Children	Completion Rate
1	Not Yet Developed	0	0%
2	Beginning to Develop	0	0%
3	Developing as Expected	5	25%
4	Developing Very Well	15	75%

Based on the recapitulation table of children's letter recognition ability in cycle I, the results obtained were 6 children (30%), namely Chy, Snm, Spr, Zfr, and Arsh, who showed that the ability to recognize letters was in the category of starting to develop (MB), namely.

Furthermore, 13 children (65%) showed that the ability to recognize letters was in the category of developing according to expectations (BSH), namely Mc, Nsr, Arrs, Rfn, Fhm, Erz, Frh, Khb, Khl Inm, Syq, and Rfs. Then, 4 children (20%), namely Hly, Erz, Fhm, and Syh who showed that the ability to recognize letters was in the category of developing very well (BSB). This can be explained through the graphic image below:

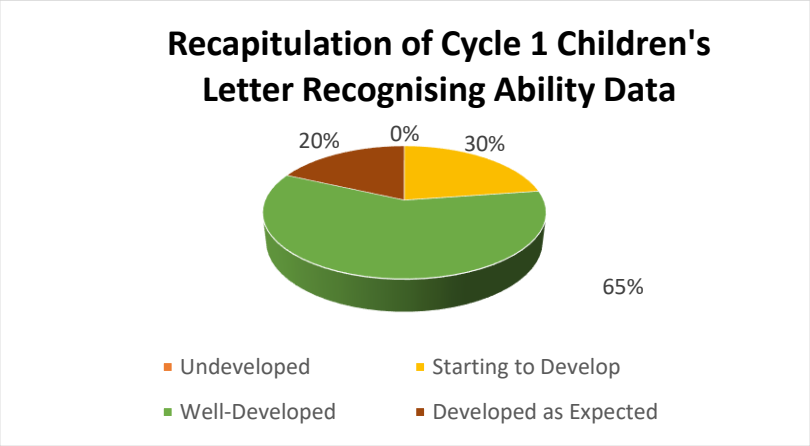

Figure 2.
Graph of Recapitulation of Cycle 1 Children's Letter Recognising Ability Data

From the graph seen above, it can be concluded that in cycle I, the targeted success indicator of 25% has not been achieved. However, in cycle II, the graph shows that the indicator has been achieved with a percentage reaching 75%. Thus, it can be concluded that the use of moving letter media can improve the ability to recognize letters in children aged 4-5 years at TK IT Al-Hafiz Cendekia.

Reflection

In the reflection stage, researchers and teachers evaluate and discuss the results of observations of the actions taken. The results of observations in cycle I showed several shortcomings in each learning. Specifically, the use of moving letters media and the development of children who vary in recognizing letters showed several obstacles. Some obstacles found during the learning process include: when the teacher explains, some children are busy chatting or distracted, so that only a few children participate actively. When using moving letters, some children talk to friends, move forward independently, or are curious about what the teacher is holding, which is not under the teacher's instructions, and they are often confused by the teacher's directions. In addition, children's moods often change, so it is difficult to involve them in learning when they are not in a positive mood. Although there was an increase, the results of the study showed that the target of 75% mastery had not been achieved. The results of the reflection concluded that to meet the desired goal of improving letter recognition using moving letters, the study must be continued in cycle II with the application of different techniques.

Planning

In Cycle II of Classroom Action Research (CAR), learning was scheduled for six meetings between 13-20 February 2025. The theme chosen was "The Universe," and the focus was on improving children's ability to recognize letters using moving alphabet media. The researcher developed a detailed learning plan (RPPH) approved by the principal, which outlined teaching activities. Collaboration with the classroom teacher was essential to ensure that both would integrate the moving alphabet during learning. The researcher observed the children's progress with a checklist designed to monitor their letter recognition. Various activities such as singing,

writing, coloring, and playing with the moving alphabet were planned to engage the children and reinforce their learning.

Implementation

1. **First Meeting (Thursday, February 13, 2025)**
   The theme of the first meeting was "The Universe" with a focus on "Natural Phenomena", especially "Rain". The session began with routine activities, such as reading the Qur'an, praying Duha, and ice-breaking, such as singing together. The teacher explained the activity plan based on RPPH, which involved playing with movable alphabet letters. Children were directed to sit properly and pay attention to the rules of the game, with examples given by the teacher. The game was played in turns, and children who faced difficulties were supported by the teacher and researchers, receiving praise for their efforts. For those who had not been called, tasks such as drawing, coloring, or cutting were given as supporting activities. During the game, assessments were made based on the children's involvement and progress, especially focusing on letter recognition. At the end of the activity, the results showed an increase in children's letter recognition abilities.
2. **Second Meeting (Monday, February 17, 2025)**
   The second session continued the theme of "The Universe," exploring "Natural Phenomena" with a focus on "Rainbows." After the usual routine, the children sat in an orderly manner while listening to the teacher explain the rules of the moving alphabet game. The game, played in turns, allowed the children to practice recognizing letters, and any difficulties encountered were addressed with help from the teacher and researcher. Children who were not asked participated in additional activities such as drawing or cutting. The session ended with an evaluation of the game, and the children's letter recognition skills were seen to improve, with several children achieving the "Developing as Expected" and "Developing Very Well" categories.
3. **Third Meeting (Tuesday, February 18, 2025)**
   The third meeting raised the theme "Universe" with the subtheme "Natural Phenomena" and focused on "Flood". Routine activities were carried out again, followed by an explanation of the rules of the game and a demonstration of how to use the moving alphabet. Children participated in the game in turns, with assistance given to those who had difficulty. Evaluation of the game was carried out as the activity progressed, and it was seen that the children's ability to recognize letters increased, as reflected in the evaluation results, which showed a large number of children categorized as "Developing Very Well" at the end of the session.
4. **Fourth Meeting (Friday, February 20, 2025)**
   The theme for the fourth session was "The Universe," with a focus on "Natural Phenomena," specifically "Earthquakes." As in previous sessions, routine activities such as reading the Qur'an and praying Duha were conducted before the session began. The teacher introduced the moving alphabet game and demonstrated its rules. Children played in turns, and those who needed additional assistance received support from the teacher and researcher. The session concluded with documentation of the children's progress, and improvements in letter recognition were observed, with most children advancing to the "Developing Very Well" category, reflecting strong engagement and learning outcomes.
5. **Fifth Meeting (Wednesday, February 19, 2025)**
   The fifth session continued with the theme "The Universe" and focused on "Natural Phenomena," specifically "Landslides." After the usual routine, the teacher explained the rules of the moving alphabet game, which was played in turns. Those who had difficulty received help and encouragement, while others were involved in additional activities. Evaluation showed significant improvements in letter recognition, with most children

categorized as "Developing Very Well." The session demonstrated the effectiveness of the moving alphabet game in improving children's literacy skills, with some children advancing to higher levels of competence.

6. **Sixth Meeting (Thursday, February 20, 2025)**
   The final session also focused on "The Universe" and "Natural Phenomena," with the subtheme "Landslides." As in the previous session, routine activities were conducted before the moving alphabet game was introduced. Children were given clear instructions and examples of the game. They participated in turns, with the teacher and researcher offering assistance as needed. During the session, children's ability to recognize letters was evaluated, and results showed that many children had advanced to the "Very Well Developed" category. The session ended with positive feedback on the children's improvement in letter recognition and engagement.

Observation

Researchers observed children's responses to the moving alphabet activities and recorded their progress. Data from the first session showed that 55% of children met expectations for letter recognition, while 30% showed very good progress. Subsequent sessions showed steady improvement, with more children reaching the "Developing Very Well" category, indicating successful adaptation to the learning strategy. Observations helped refine the teaching strategy and identify which children needed additional support.

Based on the recapitulation table of children's fine motor skills in cycle II, the results showed that there were six children (25%) who showed the ability to recognize letters in the category of developing according to expectations (BSH), namely Snm, Chy, Zfr, Arsh, and Spr. Then there were fifteen children (75%) who showed the ability to recognize letters in the category of developing very well (BSB), namely Mc, Nsr, Arrs, Syh, Rfn, Hly, Erz, Fhm, Frh, Khb, Khl, Syq, Inm, Mft, and Rfs.

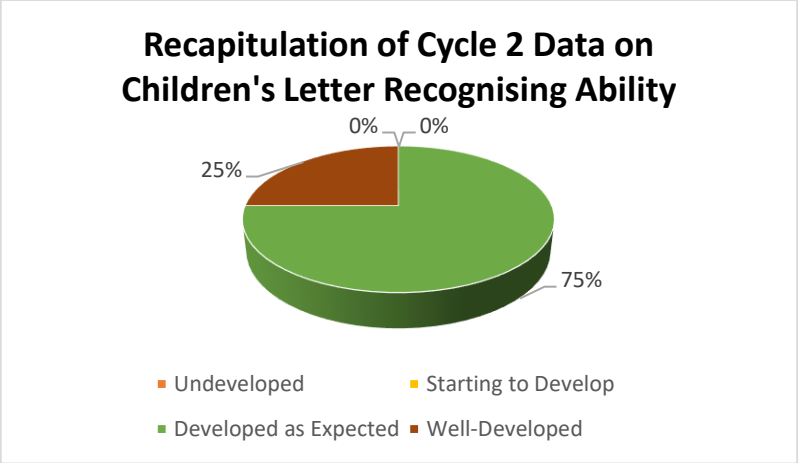

Figure 3.
Graph of Observation Results of Children's Fine Motor Skills Cycle II

Reflection

Reflecting on the results of Cycle II, the researchers noted that the moving alphabet significantly improved children's ability to recognize letters. Collaboration between teachers and researchers, along with the use of engaging activities, contributed to a supportive learning environment. However, some children needed more time and guidance to achieve the desired learning outcomes. The researchers concluded that continued use of the moving alphabet, along with tailored support, would further improve letter recognition. Plans for future cycles include addressing the needs of children who showed slower progress.

Discussion

The findings of the Classroom Action Research (CAR) conducted at TK IT Al-Hafiz Cendekia reveal that the use of movable alphabet media significantly enhanced letter recognition skills among children aged 4–5 years (Maharani & Suryani, 2025). The study followed the Kemmis and McTaggart model, involving a cycle of planning, implementation, observation, and reflection. Initial assessments indicated that only 5% of the children were classified as "Developing Very Well" (BSB) in terms of letter recognition. However, this number increased to 75% after the second cycle, showing a marked improvement due to the intervention with the movable alphabet.

This outcome is grounded in the theoretical framework of the Montessori method, which emphasizes experiential and tactile learning. Maria Montessori's educational philosophy promotes self-directed activity, hands-on learning, and collaborative play, all of which are reflected in the application of the movable alphabet (Suryani & Muharrahman, 2022). Children manipulate letters physically, which not only engages their fine motor skills but also strengthens their understanding of phonetic concepts. This tactile involvement makes abstract concepts like sounds and letter shapes more concrete and accessible to young learners.

In line with Montessori's philosophy, this media fosters intrinsic motivation among children. Learning becomes a joyful and meaningful activity rather than a task. Suryani and Muharrahman (2022) observed that children were enthusiastic and eager to use the movable alphabet, often requesting to play with it again. This excitement is critical in early childhood education, as it contributes to sustained engagement and enhances memory retention.

From a cognitive development perspective, the learning process aligns with Vygotsky's sociocultural theory, which highlights the role of social interaction and scaffolding in children's learning. According to Vygotsky, children learn best when guided by more knowledgeable others—such as teachers—within their Zone of Proximal Development (ZPD). During the implementation at TK IT Al-Hafiz Cendekia, teachers and researchers provided direct assistance and encouragement, enabling students to progress beyond what they could achieve independently. This scaffolding helped bridge the gap between current ability and potential development.

Moreover, the study supports the constructivist learning theory, which posits that learners actively construct knowledge through experiences. In this context, children did not merely memorize letters—they engaged with them through manipulation, exploration, and repetition. Constructivism emphasizes that understanding is built through doing, which is precisely what the movable alphabet allows. It creates a learning experience where children are not passive recipients but active participants in their literacy development.

Beyond tactile learning, the integration of interactive and multimodal media further enhances early literacy. Research by Cahyani and Rocmah (2021) showed that kindergarten children using digital media such as interactive videos demonstrated a significant increase in letter recognition—from 35% to 93%. Although the current study focused on a physical medium, the success of combining different sensory approaches—visual, auditory, and kinesthetic—suggests that multimedia strategies are equally effective in capturing attention and promoting understanding.

The iterative design of the CAR method also played a pivotal role. By evaluating each cycle and refining teaching strategies accordingly, the research team ensured continuous improvement. The second cycle addressed initial challenges such as classroom management and children's fluctuating attention spans. These adjustments contributed to higher engagement and learning outcomes in the final cycle, with 75% of children achieving the highest performance level (Maharani & Suryani, 2025).

In addition, the practical implications of this research are noteworthy. It highlights the importance of resourceful and reflective teaching practices. Schools and educators are encouraged to adopt child-centered tools such as the movable alphabet and ensure their

accessibility within classrooms. Parents can also replicate such interactive techniques at home, reinforcing classroom learning and creating a consistent developmental environment.

In conclusion, the study by Maharani and Suryani (2025) affirms that the movable alphabet is an effective tool for improving letter recognition among young children. Its success is underpinned by sound educational theories—Montessori's tactile learning, Vygotsky's sociocultural theory, and the constructivist approach—all of which support active, meaningful, and engaging learning. Through reflective teaching cycles and the integration of hands-on media, educators can create impactful learning experiences that lay a solid foundation for future academic success.

Conclusion

This study shows that the use of moving alphabet media significantly improves the ability of children aged 4-5 years to recognize letters. Through interactive and fun learning methods, children can understand and remember letters and are stored for a long time in their long-term memory. Before using this media, their letter recognition ability was low, but after implementation, there was a significant increase. The study found that children's recognition ability increased by 5%, with 20% of children reaching the "Very Well Developed" category in Cycle I and 75% in Cycle II. These results indicate that the movable alphabet is an effective tool to improve letter recognition ability in TK IT Al-Hafiz Cendekia. It not only helps in letter recognition but also supports the principles of active learning by involving children directly. In this way, children not only learn cognitively but also learn kinesthetically, which makes the learning experience more meaningful. These recommendations include encouraging teachers to integrate innovative methods, schools to provide sufficient resources, and parents to support learning at home. Further research should explore other media and conduct longitudinal studies. However, its limitations include classroom management challenges due to children's enthusiasm and limited media availability, which affect optimal engagement.

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